

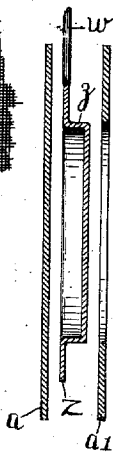
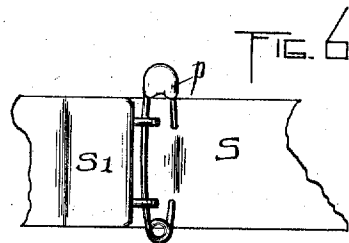
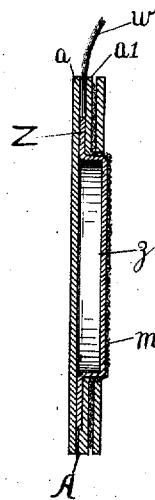
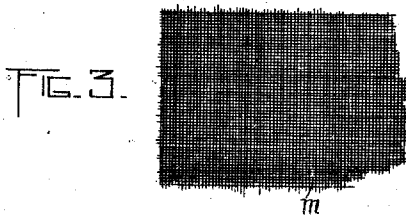
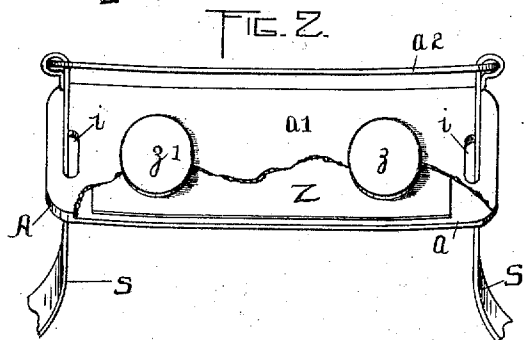
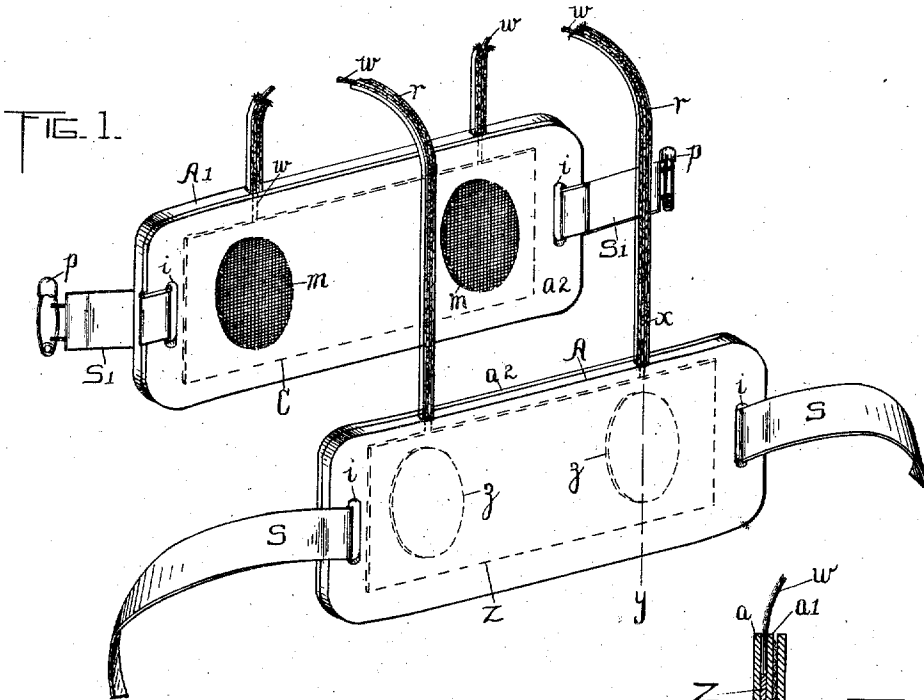
No. 770,014.

PATENTED SEPT. 13, 1904.

S. H. LINN.  
ELECTROMEDICAL APPLIANCE.

APPLICATION FILED APR. 14, 1904.

NO MODEL.



WITNESSES:

*Osborne F. Gurney*  
*Oliver M. Kemp*

FIG. 5.

INVENTOR:

*Samuel H. Linn.*  
*by Wm. C. Cooley atty.*

# UNITED STATES PATENT OFFICE.

SAMUEL H. LINN, OF ROCHESTER, NEW YORK.

## ELECTROMEDICAL APPLIANCE.

SPECIFICATION forming part of Letters Patent No. 770,014, dated September 13, 1904.

Application filed April 14, 1904. Serial No. 203,158. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL H. LINN, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented a new and Improved Electro-medical Appliance, of which the following is a specification.

This invention relates to that class of electric batteries designed to be worn by the user and with the excitant or electrolytic fluid preferably held in suspension by suitable absorbent material in contact with the tissues to be treated.

The invention consists in a novel arrangement of the voltaic elements and of means for supporting the electrolyte in suspension and in contact with the tissues to be treated.

In carrying out my present invention I prefer to make use of voltaic elements incased within suitable flexible and insulating material and projecting outwardly through openings in such insulating material in such a way as to force an absorbent pad stretched over such elements to contact with the body of the wearer in such a way that the body becomes a connecting and conducting medium between the elements. I prefer also that the elements shall be entirely incased within the insulating material except as to those projecting surfaces which are either arranged to hold the pads in contact with the body of the wearer through the openings in the insulating material or to contact directly with the body through such openings. Over these projecting surfaces of the elements I spread a pad of suitable absorbent material saturated more or less with the desired electrolyte and then hold such pad in place by means of another sheet of insulating material having openings therein for receiving the projecting surfaces of the elements with the pads stretched thereover. Such last-mentioned sheet of insulating material may be clamped and held against the surface of the body of the insulating material inclosing the elements proper by means of any suitable devices, preferably as shown in the drawings, by means of the same straps which are used to encircle the body of the wearer and arranged to hold the appliance in contact with the body. In the accompanying

drawings I have shown that modification of my invention intended for use in the treatment of affections of the lungs and air-passages, such as bronchitis, tuberculosis, &c. Such drawings are as follows:

Figure 1 is a perspective view of the complete apparatus with the body-straps separated and with portions of the insulated connecting-tapes removed, so as to show the construction and arrangement thereof. Fig. 2 shows a view of the rear side of the body-piece A with the perforated section  $a^2$  somewhat removed therefrom and tipped up so as to expose to view the projecting surfaces  $z$  and  $z'$  of the metal element Z as they project through the insulating sheet or case  $a'$ , constituting a part of the casing for inclosing such sheet of zinc, the cap-piece  $a^2$  being, as indicated, removed and tipped up, so as to present the edge thereof to the observer, and part of the sheet  $a'$  is broken away to show more fully the construction. Fig. 3 is a view of the fabric comprising the absorbent material for retaining the electrolyte in suspension. Fig. 4 is a vertical sectional view of the body-piece A, taken along the dotted line  $xy$  of Fig. 1 with all parts to the right of such line removed. Fig. 5 is a view similar to Fig. 4 with the absorbent pad  $m$  and cap-piece  $a^2$  removed and the other several parts of such body-piece slightly removed from each other, so as to more clearly bring out the construction and arrangement of such parts. Fig. 6 is a face view of the means for securing together the body-straps used to connect the body-pieces of my appliance.

Similar letters refer to similar parts throughout the several views.

Referring to the drawings, A and A' constitute the front and rear body-pieces of my appliance, similar in construction, the front one, A, of which I will describe first. It consists of a sheet of insulating material  $a$ , between which and a similar sheet  $a'$  there is clamped or secured a sheet of zinc Z, having formed thereon the two cavities  $z$  and  $z'$ , the convex surfaces of which are arranged to project through suitable openings therefor. (Seen in the sheet of insulating material  $a'$ .) This sheet of insulating material  $a'$  is cemented or otherwise

suitably secured to the sheet  $a$  at the edges around and outside of the sheet of zinc  $Z$ . Suitable connecting-wires  $w$  are secured to the upper edge of the zinc plate  $Z$  and are arranged to extend over the shoulders of the wearer and are inclosed within suitable insulating tapes  $r$ , so as to insulate such conductors from the body of the wearer. Over the projecting surfaces of the elliptical projections  $z$  and  $z'$  on the plate  $Z$  there is stretched a pad or sheet of suitable absorbent material  $m$ , which may be moistened with any suitable electrolyte and arranged to contact with the body of the wearer through the openings therefor in the retaining plate or sheet  $a^2$ , which is arranged to be firmly clamped against the sheet of insulating material  $a'$  by means of the elastic straps  $S$ , which are first secured to such plate  $a^2$  in the manner clearly indicated in Fig. 2, and then the free ends thereof are passed through the openings therefor,  $i$ , near the end edges of the sheets of insulating material  $a$  and  $a'$ , by being passed therethrough in a direction going from the body of the wearer and in such a way, as clearly indicated, that as the straps  $S$  are drawn outwardly and over the ends of the body-piece  $A$  and then around the body of the wearer on each side and secured to the straps  $S'$ , extending from the body-piece  $A'$ , such protecting-sheet  $a^2$  will be firmly held against the sheet of insulating material  $a'$  in such a way as to securely hold in place the absorbent pad  $m$ , which is forced through the openings in this sheet  $a^2$  by means of the elliptically-shaped projections  $z$  and  $z'$ , formed on the sheet of zinc  $Z$ .

The rear ends of the conductors  $w$ , held within the insulating tapes or sheathings  $r$ , are secured to the upper edge of a copper plate  $C$ , having projecting toward the body of the wearer elliptical projections concealed behind the pad  $m$  and arranged to extend through suitable openings therefor in a sheet of insulating material  $a^2$ , similar in its construction and operation in this respect to the other sheet,  $a^2$ , already described. This sheet of copper  $C$  is arranged to be held between two sheets of insulating material  $a$  and  $a'$  in exactly the same way as already described with reference to the body-piece  $A$ , such sheets being secured together around the outer edges of the sheet of copper  $C$ . The straps  $S'$  in this case are secured to the sheet of insulating material  $a^2$  in the same way that the straps  $S$  are secured to the similar sheet  $a^2$ , already described, and the free ends of such straps  $S'$  are passed through the openings  $i$  therefor near the end edges of the body-piece  $A'$  in a direction from the wearer and then passed around the ends of such body-piece  $A'$  and are secured to the straps  $S$  by means of any suitable devices—such, for instance, as the usual safety-pin  $p$ , seen as secured in the usual way to the straps  $S$  in Fig. 1. These

straps  $S'$ , by means of the safety-pins  $p$ , are adjusted so as to suit the convenience and size of the wearer.

The construction of the front and rear body-pieces for my appliance is practically identical, except as to the material of which the metallic sheet or voltaic element is composed. In the drawings I have shown the back sheet as composed of copper and the front sheet as composed of zinc,  $C$  standing for the copper and  $Z$  for the zinc. In the case of the body-piece containing the zinc element the absorbent sheet or pad  $m$  should preferably contain such an electrolyte as will constitute a suitable excitant for attacking the zinc, so as to generate between the zinc and the copper elements a current of electricity in the usual way, and over the copper element there may be stretched a suitable pad  $m$ , containing in solution any suitable conducting-salt. It will of course be understood that the zinc element is the one from which the electric current proceeds, and the purpose of the pad over the copper element is to cut down the resistance between the copper surface and the body of the wearer.

I desire to call especial attention to the following points—viz., that the voltaic elements  $C$  and  $Z$  have formed thereon projecting surfaces which extend through suitable openings therefor in an insulating plate or sheet; that such elements contact either directly or through the intervention of suitable pads with the body of the wearer through the openings therefor in the protecting-sheets of insulating material; that such protecting-sheets of insulating material constitute also means for holding the absorbent pads containing suitable solutions in place; that the connecting-cords, serving to connect the elements in the front and rear body-pieces, constitute also means for supporting the body-pieces from the shoulders of the wearer.

What I claim is—

1. In an electromedical appliance a voltaic element protected from contact with the body of the wearer except at points thereof projecting through a sheet of suitable insulating material, an absorbent pad for retaining in suspension a suitable electrolyte stretched over such projecting surface of such element, a sheet of insulating material having openings therein through which the projecting surface of such element is arranged to pass and hold such absorbent pad in contact with the body, means for clamping such last-named sheet of insulating material against the first-named sheet of insulating material with such absorbent pad between them except as forced through the opening in such last-named sheet by means of the projecting surface on such element extending therethrough.

2. In an electromedical appliance a voltaic element, a suitable pad of absorbent material in contact therewith and stretched thereover,

a sheet of insulating material stretched over such pad, such sheet of insulating material having an opening therein and such element having a projection thereon extending through  
5 such opening and arranged to hold such pad of absorbent material in contact with the tissues to be treated and through such opening in such sheet of insulating material and means for clamping such sheet of insulating material  
10 against such element.

3. In an electromedical appliance a sheet of insulating material having an opening therein, a pad of absorbent material containing a suitable electrolyte in suspension, an opening  
15 in such sheet of insulating material and a voltaic element having a corresponding projection thereon for extension therethrough and means for holding such pad of absorbent material in contact with such projection on such  
20 element on one side and against the tissues to

be treated on the other constituting means for holding such sheet of insulating material in operative position relatively to such pad and element.

4. In an electromedical appliance a sheet of  
25 insulating material having an opening therein, a voltaic element consisting in a sheet of suitable material having a projection thereon for extending through the opening in such  
sheet of insulating material and means for  
30 supporting such element and such sheet of insulating material upon the body of the wearer with such projection on such element extending toward the tissues to be treated through  
such openings in such sheet of insulating ma-  
35 terial.

SAMUEL H. LINN.

Witnesses:

JOHN M. IVES,  
OSBORNE F. GURNEY.